BMB/MMG/PSL 825
Spring 2024
Cell Structure and Function

Instructors

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Time:
Classes will be held from 1:00-2:20 p.m. Tuesday and Thursday throughout Spring Semester in Room 1420 BPS.

Office Hours:
Appointments will be scheduled as needed. Short questions can be answered by e-mail.

Readings:
Readings from the text and/or the current literature will be assigned by individual instructors. The recommended text is "Molecular Biology of the Cell", by Alberts et al., 7th Edition. You may want to purchase this book but it is not absolutely required.

Objective: Learn important aspects of cell structure and function and relevant methodologies. Acquire reading, critical thinking, writing, and presentations skills. Develop strategies for experimental design.

Class participation:
Attendance/ participation is mandatory; missing more than three class periods results in a failing grade. This is an in-person class. However, for students in Grand Rapids or those feeling sick, you can use https://msu.zoom.us/j/98250983168; Passcode: BMB825; You need to inform us ahead of time as we won't use zoom otherwise; the camera needs to be on.

Evaluation:

1 Exams	(50%); Exam 1 (57 pts), Exam 2 (43 pts),
Proposal	(25%); 50 points
Presentations	(25%); 35 points presentation; 15 pts participation

Examination Times:
The examinations will be held at the following times. *Please mark these times on your calendar, as makeup exams will not be given except in MSU-approved emergencies.*

Exam 1	Thursday, February 22 from 1:00 until 2:20 pm in Room 1420 BPS Bldg. Note that we have scheduled extra time to allow students to have up to 2 hours.
Exam 2	Tuesday, April 4 from 1:00 until 2:20 pm in Room 1420 BPS Bldg.

Presentations: You will be expected to give a 20-minute presentation summarizing a publication assigned by the professor followed by 10 minutes for questions. This presentation is worth 20 points. Presentations will happen during class time or during presentation days. There will be two presentation days with a maximum two presentations each day. You will receive participation points for asking questions. For the guest lectures, you will be required to read the provided publication and submit three questions by noon and via email and prepared to ask questions in class. This will be part of the participation grade. Information given during presentation may be included in the exams. . Sign up for your three preferred presentation topics by Jan 10 @ 5 pm.

Proposal: You will work in groups of two students.The topic is your choice and can be your PhD/MS/UG research topic. **The paper must be delivered in via email to the appropriate professor by 4:00 p.m. on Monday, April 22** and must closely follow the guidelines provided on D2L**.** Points will be deducted if the paper is late. Instructions and evaluation criteria will be posted on D2L.

The first five people to email me their favorite animal prior to Monday, Jan 8 at 5 pm will receive a coupon for a scoop of ice cream from the dairy store.

Day	Date	Lecturer	Topic
T	Jan 9	SHB	Introduction to the class; The Diversity of Cells;
Th	Jan 11	SHB	Methods in cell biology
T	Jan 16	SHB	Student Presentation on MALDI-Imaging; Lecture: Lipids and the plasma membrane
Th	Jan 18	SHB	Student Presentation on Toxoplasmosis Lecture: The plasma membrane: How structure affects function
T	Jan 23	SHB	Student presentation on nanodiscs/cryo em Lecture: The Endoplasmic Reticulum/ ER stress; Abstract for proposal due
Th	Jan 25	SHB	Student presentation on ER stress Lecture: The Secretory Pathway;
T	Jan 30	SHB	Student presentation on Optogenetics Lecture: The Secretory Pathway; extracellular vesicles
Th	Feb 1	SHB	Student presentation: extracellular vesicles Lecture: Mitochondria & Chloroplasts -> import into organelles
T	Feb 6	SHB	Student presentations – Mitochondrial fission; Lecture: Mitochondria & Chloroplasts -> import into organelles
Th	Feb 8	SHB	Student presentation: trafficking Lecture: Lipids in the environment/disease
T	Feb 13	SHB	NO CLASSES
Th	Feb 15	SHB	Student presentation Lipids as signaling molecules Lecture: Signalling
T	Feb 20	SHB	Student presentations G proteins; single-molecule imaging
Th	Feb 22	SHB	**Exam 1: 12:45-2:45, 1420 BPS**
Feb 26 – March 1			**Spring break**
T	Mar 5	AD	Signaling: cell-cell communication, inflammation; Proposal Background and aims overview due; Rest of the proposal: Q&A, discussion session
Th	Mar 7	AD	The nucleus: cell commander's hub; Student Presentation
T	Mar 12	AD	The cytoskeleton: movement and function control; Student Presentation
Th	Mar 14	AD	Cell division, cell-cell junctions, and cell adhesion;Student Presentation
T	Mar 19	AD	Cell death; Student Presentation
Th	Mar 21	AD	Control of cell fate, cancer and differentiation; Student Presentation
T	Mar 26	AD	Control of cell fate, cancer and differentiation; Student Presentation
Th	Mar 28	AD	Cell-pathogen interaction: the inflammasome; Student Presentation
T	Apr 2	AD	Two Student Presentations
Th	Apr 4	AD	**Exam 2: 12:45-2:45, 1420 BPS**
T	Apr 9		Student presentations; proposal discussions
Th	Apr 11	SHB/MB	Dr. Melanie Balbach
T	Apr 16	SHB	Proposal work/ feedback
Th	Apr 18	SHB/BO	Dr. Ben Orlando
April 22 – 26			**Finals week;** Proposal due Monday, April 22